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ALARA PROGRAM

The following conditions describe the program followed by **Mrs. Sandra Franklin, Radiation Safety Officer**, to ensure that occupational radiation exposures to faculty, staff, and students engaged in the use of radioactive equipment are kept As Low As Reasonably Achievable.

I. MANAGEMENT COMMITMENT

Mrs. Sandra Franklin, Radiation Safety Officer, is committed to make every reasonable effort to minimize radiation exposures to faculty, staff and students, through the following control measures:

- The campus's radiation safety officer will make personnel aware of the LSU System Radiation Safety Committee's commitment to maintain low exposure levels.
- The LSU System Radiation Safety Committee will periodically review operating procedures with the Radiation Safety Officer to determine steps taken to reduce exposures.
- The LSU System Radiation Safety Committee will ensure that the person, or persons, selected for the Radiation Safety Officer responsibilities are fully qualified to administer all aspects of a radiation protection program.
- The LSU System Radiation Safety Committee will ensure that all faculty, staff, and students engaged in the use of radioactive equipment are fully educated in the area of radiation safety. This will be reviewed at least once every three years, and addition education will be scheduled as necessary.
- The RSO has full authority to enforce safe operation, and to communicate as required with the LSU System Radiation Safety Committee to halt an operation that he or she deems unsafe.

II. VIGILANCE BY THE RSO AND RADIATION PROTECTION STAFF

The RSO has the responsibility to monitor the Radiation Safety Program to ensure that exposures are as low as reasonably achievable, and to search for new and better ways to perform jobs with less exposure. The following aspects apply to this responsibility:

- The RSO shall know the origins of radiation exposure and be aware of trends in exposures.

- Should unusual exposures occur; the RSO shall initiate an investigation of the circumstances to determine causes and prevent the likelihood of reoccurrence. Operating procedures should periodically be reviewed to identify situations in which exposures can be reduced.
- The RSO shall be responsible for ensuring that the equipment used on campus is maintained in good working order and used properly. Written procedures for use of the equipment are to be available and followed.

Sandra Franklin B.S., R.T. (R)
Radiation Safety Officer
Louisiana State University, Alexandria

Emergency Notice

Despite the strict adherence to all laboratory safety rules, it is **possible that accidents involving radioactive material** will occur on occasion. For this reason, it is important that radioactive material users are aware of the proper procedures to follow for various types of accidents.

Minor Spills:

Incidents that involve the release or spillage of less than 100 microcuries of a radionuclide in a nonvolatile form can generally be regarded as minor. In such cases:

1. Notify all other persons in the room at once.
2. Clear the room of all persons except those needed to deal with the spill.
3. Confine the spill immediately.
 - Liquids: Drop absorbent paper or chemical (e.g. calcium bentonite) on the spill. The standard "Spill Controls Kits" are available from Chemistry Stores.
 - Solids: Dampen thoroughly, taking care not to spread contaminants; otherwise use oil.
4. Notify the laboratory supervisor.
5. Notify the Radiation Safety Officer:
 - Sandra Franklin, 427-4463.
 - After hours, notify University Police:
 - 473-6427
 - 709-0545 (cell phone)

Major Spills or Releases:

An incident that occurs outside of a fume hood and involves the release of more than 100 microcuries of a radionuclide in a nonvolatile form, or the release of any amount of a radionuclide in a volatile form, should be considered "major." In such cases:

1. Evacuate the room immediately, shutting doors and windows on the way out.
2. Notify the laboratory supervisor.
3. Notify the Radiation Safety Officer:
 - Sandra Franklin, 427-4463.
 - After hours, notify University Police:
 - 473-6427
 - 709-0545 (cell phone)
4. Post the laboratory door with a "Keep Out" sign.
5. Assemble those persons who were present in the laboratory far enough away to assure everyone's safety.
6. Wait for assistance.

Accidents Involving Personal Injury:

For any accident involving personal injury, medical treatment or assistance will always be the first priority. This may involve administering first aid and/or calling "0" or **Extension 5500** to notify for emergency medical assistance. Inform the police of the potential for radioactive contamination. For accidents involving radioactive materials, contamination control and exposure control are important but should never delay or impede medical assistance. If radioactive materials are involved, emergency personnel should be notified before treatment takes place, so they can take appropriate action to protect them as well as prevent the spread of contamination. Both the Radiation Safety Officer (Sandra Franklin, 427-4463) and the Director of Utility Plant (473-6475 or 709-0554) must also be notified as soon as possible. After the injured person is treated and removed from the accident site, the previously described procedures should be followed as appropriate.

Personal Contamination:

In the event of any personal contamination:

1. Notify the Radiation Safety Officer (Sandra Franklin, 427-4463) immediately.
2. Remove all contaminated laboratory personal protective clothing (lab coat, gloves, etc.)
3. If possible, wash contaminated area with mild soap and water.
4. Monitor the contaminated area.
5. Repeat washing as necessary.

Decontamination Procedure:

In the event that surfaces or equipment within the laboratory are suspected or determined to be contaminated with radioactive material, the radionuclide user must initiate and complete appropriate decontamination procedure. For most relatively minor contamination incidents, the following general steps should be taken upon discovery of the contamination:

1. Mark the perimeter of the contaminated area.
2. Notify the Radiation Safety Officer (Sandra Franklin, 427-4463) and the Director of Utility Plant (473-6475 or 709-0554) of the contamination so that their staff can more accurately assess the extent of the contamination and advise and assist in the decontamination effort.
3. Assemble cleaning supplies such as paper towels, detergent in water, plastic bags and plastic gloves.
4. Proceed with scrubbing the area from the borders to the center, cleaning small areas at a time.
5. Periodically monitor the effectiveness of the decontamination effort with surface wipes and instrument surveys.
6. Place all contaminated cleaning materials such as paper towels, rags, and gloves in a plastic bag and label as radioactive waste.

7. Notify the Radiation Safety Officer and the Director of Utility Plant upon completion of the decontamination effort so that a follow-up contamination survey can be made.

If you want additional information on any these procedures, please contact the Radiation Safety Officer at extension 4463.

Duties of the Radiation Safety Officer

1. Assure that radioactive materials possessed under the license conform to the materials listed on the license.
2. Assure that only individuals authorized by the license use licensed radioactive materials.
3. Assure that all authorized users were required personnel monitoring equipment, such as film badges or TLDs.
4. Review all personnel monitoring reports:
 - Alert the radiation worker (faculty, staff, or student) if there is a high or unusual exposure.
 - Notify the LSU System Radiation Safety Committee as required if there is a high or unusual exposure.
 - Investigate all unusual exposures.
 - Take corrective action to prevent other high or unusual exposures.
5. Assure that licensed radioactive materials are properly secured against unauthorized removal at all times when they are not in use.
6. Serve as a point of contact between radiation workers (faculty, staff, and students) and the LSU System Radiation Safety Committee.
 - Give assistance in case of an emergency
 - Notify proper authorities in case of accident or damage to equipment or personnel
7. Assure that the terms and conditions of the license are met.
 - Perform periodic leak tests of sealed sources with the appropriate faculty of the Department of Allied Health.
 - Review records periodically to assure compliance with PM-30 of the Louisiana State University System.

RADIOLOGIC TECHNOLOGY PROGRAM RADIATION PROTECTION POLICY

Each student will be issued **two** Thermoluminescent dosimeters (TLDs). One dosimeter will remain at the clinical training site for the student to wear during their clinical assignment. The other dosimeter will remain at LSUA for the student to wear during their performance in the energized labs. This method is to reduce unnecessary radiation exposure to the TLDs. Also, the dosimeters will be exchanged every quarter during the **first and second week of that month** by the Clinical Instructor at each facility and by the PD at LSUA.

Dosimeters **must not** be exposed to excessive heat or moisture. **If the dosimeter is taken home, never leave it in the car, place it in the washer or dryer, or in close proximity of a television set.** Students must wear dosimeters in the proper position (**outside the protective lead apron, on the collar**). Results of the radiation monitoring will be available **quarterly** immediately upon receipt of the report. It is the **responsibility of students** to track their own radiation exposure.

The **Radiation Safety Officer (RSO)** will evaluate each report thoroughly. Any exposure will be investigated for cause and necessary corrective measures taken where applicable. **The occupational dose equivalent limits for adults are:**

1. **Annual Limit:**
 - a. **Total effective dose equivalent being equal to 50 mSv (5 rem).**
 - b. **The sum of the deep dose equivalent and the committed dose equivalent to any individual organ or tissue other than the lens of the eye being equal to 0.5 Sv (50 rem).**

2. **Annual Limit to the lens of the eye, skin, and extremities are:**
 - a. **Eye dose equivalent of 150 mSv (15 rem)**
 - b. **Shallow dose equivalent of 500 mSv (50 rem) to the skin or any extremity.**

A Student Exposure Report will be completed by the RSO on any student who receives more than 2.5 mSv (250 mrem) in one calendar quarter. Students should not receive more than 10 mSv (1000 mrem) in ONE YEAR. Students must employ safe radiation protection techniques for the patient, self, and others during radiographic exposures.

Students assisting in fluoroscopic examinations must wear lead aprons. Lead gloves **must be worn** if the hands must lie in the primary beam. **Students are responsible** for seeing that lead aprons are available for **all persons** involved in fluoroscopic procedures. Aprons **must be worn** during mobile radiography and mobile fluoroscopy. Gonadal shields **must be used** on patients of reproductive age or younger when the presence of the shield does not obscure clinically significant data. Collimation **must be used** to restrict the primary beam to the area of clinical interest.

**LSUA RADIATION PROTECTION POLICY
RADIOLOGIC TECHNOLOGY PROGRAM
STUDENT EXPOSURE REPORT**

Student's Name _____ Student's Date of Birth _____

Student's Social Security Number _____ Date TLD Issued _____

Date TLD Read _____ TLD Reading _____

The above reading exceeds the recommended dose equivalence for one calendar quarter set forth in the Student Clinical Handbook under the Radiation Protection Policy, and by the LSU System Radiation Safety Committee.

The object of the ALARA program is to maintain radiation exposure at the lowest possible levels. This program is based on the premise that radiation exposure is not free of risk and therefore, radiation exposure should be kept to levels well below the limits allowed by the Nuclear Regulatory Commission, the state of Louisiana and other regulatory agencies. The state dose equivalent limit for an occupational radiographer is 5,000 mrem or 5mrem /yr. For students in the clinical education experience of a radiography program, the administrative dose equivalent limit is 1000 mrem/yr or 1 rem/yr. Therefore, investigational action levels set by the Radiologic Program at Louisiana State University at Alexandria are as follows:

A student who receives more than 250 mrem/calendar quarter or 0.250 rem/calendar quarter.

Your dose is below the NRC and State limits but exceeds the limit recommended for student clinical education experience at a clinical site. This behavior indicates a need to review radiographic procedures performed during a specific clinical assignment in order to reduce your exposure. Apply the basic rules of radiation protection (time, distance and shielding) to lower your radiation exposure.

Please provide (in the space below) a written explanation as to why you believe this level was exceeded. Please be specific.

Student Signature

Course Coordinator (RSO) Signature

Date

Clinical Instructor

Adapted from Rapides Regional Medical Center

RADIOLOGIC TECHNOLOGY PROGRAM PREGNANCY POLICY

A female student is given the option of whether or not to inform program officials of her pregnancy. If the student chooses to **voluntarily** inform officials of her pregnancy, it must be in writing. In the absence of this **voluntary** written disclosure, a student cannot be considered pregnant. However, due to the sensitivity of the unborn child to radiation, it is necessary to inform female applicants of the possible health risks involved as a result of occupational exposure during pregnancy.

1. Pregnant students **should** notify the PD, Clinical Instructor, and the Radiation Safety Officer as soon as pregnancy is suspected/determined so that appropriate radiation safety measures can be instituted. Even though this written notification is **voluntary**, the Department of Allied Health encourages the pregnant student to perform this measure.
 - 1.1 If the student chooses to **voluntarily** inform officials of her pregnancy, a physician statement verifying the pregnancy shall be submitted by the student. This statement **must include** a medical release which allows the student to continue with clinical assignments. If, for medical or personal reasons, the student is unable to complete the clinical assignments, she may initiate a request for authorization of an “**I grade**” through the office of **Vice Chancellor for Academic Affairs and Provost**. The student **must** subsequently remove the “**I grade**” following the regulations in the University catalog. Should the student choose to withdraw from a clinical course, the “**Withdrawal**” guidelines in the University catalog **must** be followed. Should the student choose to resign from the program, the “**Resignation**” guidelines in the University catalog **must** be followed.
2. Upon verification of pregnancy, the PD will review all appropriate and applicable principles of proper radiation safety with the student.
 - 2.1 Notify all appropriate radiology department personnel of the expectant status of the student in order to insure proper clinical education experience while maintaining the standards of radiation safety.
 - 2.2 The student will be given the following documents to review:
 - A. **NCRP Report No. 54**
 - B. **NCRP Report No. 128**
 - 2.3 Changes in the clinical assignments may be instituted in order to insure compliance with the recommended **Effective Dose Equivalent** standards upon completion of the declared pregnancy form.
3. Following completion of the declared pregnancy form, the **Effective Dose Equivalent** to the fetus from occupational exposure of the expectant mother

should not exceed 0.5 rem during the remaining gestation period. The monthly exposure shall not exceed 0.05 rem. The student will be furnished a TLD fetal radiation monitoring device. This device must be worn at waist level at all times and underneath the protective lead apron during fluoroscopy.

4. If pregnancy occurs during the first semester of the program and the student is unable to fulfill the required clinical objectives, the student will withdraw from the program and may reapply the following Spring semester. If pregnancy occurs after the completion of the first semester and the student is unable to fulfill the required clinical objectives, the student may request authorization of an **“I grade”** through **Vice Chancellor for Academic Affairs and Provost** for the clinical course. The student may either withdraw or re-enter the same semester of the following year if guidelines for removal of the **“I grade”** have been followed and a letter of intent to re-enter the program is turned in to the PD by **April 1st**.

ATTENTION PROGRAM FACULTY AND STUDENTS

It is the responsibility of all students to abide by the laboratory safety rules, basic operations, and operator methods set forth by the Radiologic Technology Program. Any misuse of equipment or deliberate failure to follow these rules will result in disciplinary action. The ALARA Plan, the laboratory safety rules, basic laboratory operations, and operator methods are kept in a binder labeled, “Radiation Safety Manual” located in Rm 1142 in the Radiology Department at England Airpark Facility.

Material Safety Data Sheets (MSDS) for processing chemicals, radiation protection, and lab equipment are kept in a binder labeled, “MSDS” and “QA PRODUCTS” located in Rm 1142 in the Radiology Department at England Airpark Facility.

In case of an emergency, refer to the “LSUA Emergency First Aid Response Procedures” posted on the wall in radiology labs (Rms 1143 & 1144) in the Radiology Department at England Airpark Facility.

EMERGENCY PROCEDURES
EMERGENCY NOTIFICATION PROCEDURES AND TELEPHONE
NUMBERS

For Campus Medical Emergencies
Call "0" (Switchboard)
or Extension 5500

A. Emergency Response

Emergency is defined as an unexpected, serious occurrence resulting in injury or illness requiring immediate attention. To care for such emergencies, an Emergency Response Team, chaired by the Nursing Department Chair or other Nursing Department person as appointed by the Nursing Department Chair as the "Emergency Response Person In-Charge," is responsible for insuring that procedures are established for responding to emergency first aid requirements for LSUA students, staff and faculty. This team includes individuals from the faculty, administration, and staff.

The following general procedures should be followed:

1. A room for campus medical emergencies is located in Hugh Coughlin Hall (Nursing Education Building). Access to this room is controlled by the Emergency Response Team. The "Emergency Response Person In-Charge" is responsible for insuring that an adequate supply of first aid materials is in this room.
2. The "Emergency Response Person In-Charge," or in his/her absence, a member of the Emergency Response Team should be called to the scene. This can be accomplished by calling "**0**" **or Extension 5500** as the central location for reporting accidents and coordinating attention relating to it. After 4:30 p.m. call University Police (Extension 6427) or 487-0625 then press 702481. If you cannot reach them, dial 9 (for an off-campus line) and 911. The 911 operator will contact University Police.
3. The Emergency Response Team is responsible for developing and posting a procedure to be followed in responding to the administration of medical emergencies. This should include hospital emergency room telephone numbers and ambulance information. An immediate report should be made to Ms. Belinda Aaron, the campus safety officer at Extension 6515, who will then be responsible for 1) contacting the family, and 2) completing any appropriate report(s) for files and future

use. The Emergency Response Person In-Charge or a team member will also file a brief report.

EMERGENCY RESPONSE COMMITTEE

- Pat Franks, Chair Ext. 4452
- Emergency First Aid Person In-Charge
- Robert Cavanaugh..... Ext. 6444
- Julie Gill..... Ext. 4456
- Sue Haynes..... Ext. 6448
- David Huey Ext. 4431
- Sheryl Herring..... Ext. 6464
- Melissa Parks Ext. 6454
- Kenn Posey Ext. 6477 or 6423
- Michael Wright Ext. 4445
- University Police Officer on Duty Ext. 6427 or 709-0545

B. Emergency Preparedness

In the event of a mass emergency, the Chancellor or his representative will report the emergency to the Communication Center (911) and request assistance from Troop E of the State Police; from the Alexandria City Police; and the Rapides Parish Sheriff's Office.

EMERGENCY NUMBERS

- State Police-Troop E 911 or 487-5911
- Alexandria City Police 911 or 449-5099
- Rapides Parish Sheriff's Department 911 or 473-6700

C. Fire

Fire department notification is the responsibility of the Chancellor or his representative. The Operating Engineer on duty will shut down natural gas and electricity to the affected areas. The Chancellor's Office, the Physical Plant, and the Campus Safety Officer should be notified of the location and severity of any fire. **ANY PERSON CAN REPORT A FIRE THAT IS A DANGER TO LIFE OR PROPERTY.** If an individual personally reports a fire to the Fire Department, the Chancellor's Office must be notified immediately of actions taken.

EMERGENCY NUMBER

AFTER HOURS

Alexandria Fire Department	911 or	441-6911
Alexandria City Police	911 or	449-5099
Chancellor's Office	Ext. 6444	776-5545
Vice-Chancellor for Business Affairs	Ext. 6408	473-6490
Director/Physical Plant	Ext. 6475	899-7380
Campus Safety Officer	Ext. 6515	659-3203

EMERGENCY NUMBERS

Campus Medical Emergency Number
University Police – 473-6427, 473-6424, or
445-3672

Ambulance
Rapides Regional Medical Center
St. Francis Cabrini Hospital
Utility Plant – 473-6475

AFTER HOURS

473-5500
709-0545

911
473-3000
448-6750
709-0554

**RADIOLOGIC TECHNOLOGY PROGRAM
GUIDELINES FOR SAFETY AND OPERATION
FOR THE ENERGIZED LABORATORY**

I. Laboratory Safety Rules

A. Rules

- There will no use of profanity or unprofessional vocabulary in the labs.
- There will be no arguing with the instructor or other students.
- Students are responsible for cleaning up the food and drink containers brought into the classroom.
- No food or drink containers are allowed in the labs.
- Students are responsible for the material covered in class regardless of tardiness or absence.
- Faculty members will not tolerate the following causing class disruption:
 - Idle chatter, back talk, or outbursts
 - Unsafe handling of equipment
 - Horseplay
 - Failure to use approved “Right” and “Left” lead markers and a TLD radiation monitoring device during a laboratory assignment
 - Stores TLD radiation monitoring device inappropriately.
 - Placing students/faculty in an unsafe condition

B. Disciplinary Action:

First offense will be considered as a **Minor Violation**. The student will be dismissed from the classroom for that entire day. The student’s behavior will be documented on a clinical incident Form by the instructor and placed in the student’s permanent record file.

Second offense will be considered as a **Major Violation**. The student will be dismissed from the classroom for that entire day. The student will be counseled in a group meeting by the clinical instructor involved and the RADT Program Director. This again will be documented on a Clinical Incident form and placed in the student’s permanent file.

Third offense will be considered as a **Serious Violation**. The student will be dismissed from the classroom until further notice. The student will be informed by the PD of the specific time to meet with the **Radiologic Technology disciplinary panel** which will be held within five working days. The student will be informed of a plan of action prior to leaving the LSUA campus. An additional serious violation, whether or not related to the previous, will result in an automatic failure of the course.

II. Basic Operation of Equipment

A. X-ray Unit Consoles in Both Energized Labs (Rm 1143 & 1144)

1. Turn on all line circuit breakers located near the radiographic tables in each lab.
2. Energize each console by depressing the exposure switch.
3. Perform tube warm-up if unit has not been used for two hours. Be sure to close collimator.
4. Select technical factors as needed.
5. Avoid prolonged rotor activation (boost) prior to exposure.
6. Consult tube-rating charts prior to large exposures.
7. When use is completed, turn off power switches in reverse order.

B. Table and Tube Support in Both Energized Labs (Rm 1143 & 1144)

1. Move table, tube/tube stand only when proper locks are selected.
2. Insure that all stretchers, chairs and stools are not obstruction the table or tube before moving.

C. Human Phantoms and Test Phantoms

1. When positioning human or test phantoms onto a wheelchair, gurney, or radiographic table, demonstrate lifting and transfer techniques using proper body mechanics.
2. The phantoms must be handled with the utmost care.
3. Never lift a PIXY phantom by the extremities.
4. Return all phantoms to the proper storage areas when finished.
5. The PIXY phantoms are kept on a gurney in the storage room.
6. Please refer to the INSTRUCTION MANUAL FOR PIXY WHOLE-BODY PHANTOM for further information regarding this matter, which is kept in the QA PRODUCT MANUAL located in the*****.

It is the responsibility of all students to abide by these rules and operating methods. Any misuse of equipment or deliberate failure to follow rules will result in disciplinary action.

Material Safety Data Sheets (MSDS) for processing chemicals, radiation protection, and lab equipment are kept in Rm 1142 in the Radiology Department at England Airpark Facility.

In case of an emergency, refer to the LSUA Emergency First Aid Response Procedures posted on the wall in all Labs (Rms 1143 & 1144, England Airpark Facility).

D. Laboratory Accessories

1. Handle cassettes and QC instruments with the utmost care.
2. Return all items to proper storage areas after use.

E. Darkroom Operation

1. Turn on white ceiling light on wall.
2. Turn on large circuit breaker on wall.
3. Turn on processor power and darkroom safe lights.
Make sure the white ceiling light goes off.
4. Perform top roller daily cleaning if necessary.
5. Close process lid.
6. Process 14x17-scrap film for cleanup.
7. Make sure film bin is closed before leaving the darkroom.
8. Mixing chemical will be conducted with direct supervision of the program faculty.

II. Operator Protection

A. Lab utilization will be granted for lower level students with **direct supervision**, and for upper level students with **indirect supervision**. The program director and faculty of radiologic technology are responsible for the supervision of all students enrolled in the program. The program director and faculty are responsible for personnel who enter the energized labs at all times.

1. The TLD radiation monitoring device shall be worn during any operation of the energized unit.
2. Close all doors to the energized lab before making any exposure.
3. Insure that there is no one in the lab during exposures.
4. Observe low hanging and projecting equipment manipulating the unit.
5. Ensure that all doors are locked when the lab is not in use.
6. The lab shall be used only with permission of the radiography faculty.
7. **An LSUA RADT faculty member must be present during its use.**
8. Students shall practice all standard radiation safety practices while operating the equipment.
9. A professional demeanor shall be practiced at all times.
10. A copy of the LSU System Radiation Protection Program (PM-30) regarding this matter is located in this manual.

January ^{As of:} 2005



Louisiana State University SYSTEM RADIATION SAFETY COMMITTEE

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June 1, 2000

PM-30

MEMORANDUM TO: Chancellors Cavanaugh, Costonis, Emmert, Marsala, Nunez, O'Brien, Richardson, Trail, and Executive Director Bouchard

SUBJECT: LSU System Radiation Protection Program

This memorandum supersedes PM-30 dated 10/06/97

An LSU System Radiation Safety Committee is established to develop and implement a program to assure the proper and safe usage of radioisotopes and other sources of ionizing and non-ionizing radiation within the LSU System with the exception of the Medical units associated with the Health Care Services Division. The position of Coordinator is created to control and coordinate the University System's radiation safety program.

Membership on the LSU System Radiation Safety Committee shall be as follows:

- a. the Coordinator of the LSU System Radiation Safety Program,
- b. the Secretary of the LSU System Radiation Committee
- c. the Chair from each of the campus radiation safety committees, or the equivalent,
- d. the System Radiation Safety Officer.

At a minimum, the Committee shall meet three times per year. Meetings may be by teleconference or other electronic means. The Coordinator shall serve as Chair of the Committee. A Vice Chair shall be elected from those members of the Committee representing another campus of the University System. The Coordinator, Vice Chair, Secretary and System Radiation Safety Officer shall serve as an Executive Committee with authority to conduct official business after polling the other committee members by telephone or mail.

The President shall designate as Coordinator any member of the University System Faculty who is knowledgeable in the use of radiation and radioactive materials. The Coordinator shall be administratively responsible for the radiation safety necessary in the use of radiation and radioactive materials required in the University System research, instructional, and service programs. This requires surveillance of all properties owned or controlled by the University System and all personnel on or about these properties where the possibility of occupational exposure to radiation or radioactive materials exists.

The President shall designate as Secretary any member of the University System Faculty who is knowledgeable in the use of radiation and radioactive materials. In addition to keeping the minutes the secretary will be responsible for preparation of meeting agenda and arranging for meetings.

When medical exposure to patients occurs in University-owned facilities for the purpose of diagnosis and/or therapy, the amount of exposure to the patient is the responsibility of the administering physician. The overall radiation safety program for all other personnel, including the attending physician(s), is vested in the Campus Radiation Safety Officer of that campus.

The individual Chancellors, with the approval of the Coordinator of the System radiation safety program, shall appoint a Campus Radiation Safety Officer(s) and a Campus Radiation Safety Committee(s) if nuclear materials or other sources of ionizing or non-ionizing radiation are in use on the campus. These individuals shall be selected from those faculty and staff members having knowledge and work experience in the areas of radiation and radioactive materials.

The Campus Radiation Safety Officers and Campus Committees will be responsible to the System Coordinator for the proper control and supervision of projects utilizing radiation and/or radioactive materials on his/her campus. On campuses where the only sources of radiation and radioactive materials consist of small teaching sources or those in analytical instruments, the Chancellor is only required to appoint an individual responsible for radiation safety on the campus.

The LSU System Radiation Safety Committee shall have direct responsibility for (a) licensing of all matters requiring and/or affecting the campus use of the University System's license or registration, and (b) supervision of the activities of each Campus Radiation Safety Committee and of the Radiation Safety Officer on those campuses without a Committee. The Committee also will have oversight of those organizations which use radiation-producing equipment or possess a license to use radioactive material and who are administratively independent of the LSU System, but reside in or on LSU System property.

Approval of the Campus Radiation Safety Officer and the Campus Radiation Safety Committee are required in:

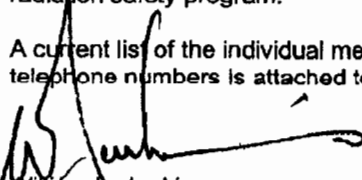
- a. Personnel - all responsible persons desiring to use radioactive materials and radiation shall have acceptable training or experience.
- b. Procurement - all requisitions for radioactive materials and radiation sources.
- c. Projects - all academic programs, research and development projects and other University activities involving radiation and radioactive materials.
- d. Contracts and Grants - all contracts and grants requiring use of radiation or radioactive materials.
- e. Facilities and Radiation Monitoring Equipment - all University activities requiring radiation or radioactive materials shall have suitable facilities and radiation monitoring equipment to provide acceptable radiation safety.
- f. OSHA Regulations Pertaining to Ionizing Radiation - all University activities falling within the purview of the Occupational Safety and Health Act, Section 1910.1096, entitled "Ionizing Radiation" are the responsibility of the Campus Radiation Safety Officer.
- g. Regulations Pertaining to Non-Ionizing Radiation - all University activities falling within the purview of the LSU System Non-Radiation Safety Procedure are the responsibility of the Campus Radiation Safety Officer.
- h. Implementation of Portions of the Electromagnetic Radiation Act (1968) - all University activities utilizing equipment which potentially generates non-ionizing radiation incidental to its main purpose, such as microwave devices, video display terminals and television monitors, are the responsibility of the Campus Radiation Safety Officer with regards to occupational radiation safety.

The LSU System Radiation Safety Officer is directly responsible for implementation and review of compliance with the regulations and policies established by the System Coordinator and the System Radiation Safety Committee. The System Radiation Safety Officer is vested with the authority to act immediately in all matters pertaining to radiation safety involving LSU System personnel engaged in University-sponsored activities or any other personnel on University property. The Safety Officer's authority and actions, as defined in this memorandum, are subject to review by the System Radiation Safety Committee. This assigned authority shall not relieve the individual from the normal review and authority of his/her departmental administration.

At the spring meeting, the LSU System Radiation Safety Committee will prepare a budget for the next fiscal year. Each administrative unit which uses radiation and/or radioactive material shall pay a proportional share of this budget. The proportion shall be determined by the Committee. Should the Committee be unable to agree on proportions, the decision will be made by the Vice President for Academic Affairs. Each administrative unit will be invoiced in July of each year. Administration of the budget shall reside with the System Radiation Safety Officer.

Periodic revisions of PM-30, when necessary, shall be accomplished after consultation with the LSU System Radiation Safety Committee, since the membership of that Committee is comprised of persons with experience, training, responsibility and authority necessary to implement the University System's radiation safety program.

A current list of the individual members of the LSU System Radiation Safety Committee and their telephone numbers is attached to this memorandum as an "ADDENDUM".



William L. Jenkins
President

cc: System Offices

MEMBERSHIP OF THE LSU SYSTEM RADIATION SAFETY COMMITTEE

Name	Campus	Telephone	Fax	e-mail
Coordinator and Chair Sandra Roerig	LSUHSC-S	318 675-7877	318 675-7857	sroeri@lsuhsc.edu
Vice Chair Rob McLaughlin	LSU-E	337 550-1340	337-550-1289	rmclaugh@lsu.edu
Secretary Kenneth Mathews	LSU & A&M College	225 578-2740	225 579-2094	kipmatth@lsu.edu
System Radiation Safety Officer L. Max Scott	LSU & A&M College	225 578-4400	225 578-4541	lscott6@lsu.edu
David Bankston	LSU Ag Center	225 578-2229	225 578-5300	dbankston@agcenter.lsu.edu
Mary Clancy	UNO	504 280-6734	504 280-6121	mjcbs@uno.edu
Sandra Franklin	LSU A	318 427-4463	318 473-6567	sfranklin@lsua.edu
Bryan Gebhardt	LSUHSC NO	504 412-1348	504 412-1315	bgebha@lsuhsc.edu
Robert Holmes	LSU & A&M College	225 578-9555	225 578-9895	rholmes@mail.vetmed.lsu.edu
Stephen Jennings	LSUHSC S	318 675-5760	318 675-5764	sjenni@lsuhsc.edu

**LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF ENVIRONMENTAL SERVICES**



RADIOACTIVE

MATERIAL LICENSE

**PERMITS DIVISION
REGISTRATIONS and CERTIFICATIONS SECTION
P.O. BOX 4313
BATON ROUGE, LOUISIANA 70821-4313**

Pursuant to the Louisiana Environmental Quality Act (Louisiana Revised Statutes 30:2101 et seq.) and the Louisiana Radiation Regulations, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, own, possess and transfer radioactive material for the purpose(s) and at the place(s) designated below. This license shall be deemed to contain the conditions specified in the Louisiana Revised Statutes 30:2105 of the Louisiana Nuclear Energy and Radiation Control Law, and is subject to all applicable rules, regulations, and orders of the Department now or hereinafter in effect, including the Louisiana Radiation Regulation (LAC 38:XXV) and to any condition specified in the license.

LICENSEE Louisiana State University Radiation Safety Office Baton Rouge, Louisiana 70803 AI No. 5540 Attention: L. Max Scott, Ph.D. System Radiation Safety Officer	LICENSE NUMBER LA-0001-L01	EXPIRATION DATE May 31, 2005
	AMENDMENT NUMBER 30	PREVIOUS AMENDMENTS ARE VOID
	THIS LICENSE ISSUED PURSUANT TO AND IN ACCORDANCE WITH Letters SIGNED BY: L. Max Scott, Ph.D., RSO DATE: April 2, 2004 & April 13, 2004	

RADIOISOTOPE		MAXIMUM NUMBER OF SOURCES	MAXIMUM ACTIVITY OR QUANTITY PER SOURCE	SEALED SOURCE IDENTIFICATION		STORAGE CONTAINER OR EXPOSURE DEVICE	
ELEMENT	MASS NO.			CHEMICAL FORM-PHYSICAL STATE		AUTHORIZED USE	
Any (Except 226 SNM**)	3-	Each	3,000 mCi	Any			Instruction and Research
H	3	Total	50 Ci	Any			Instruction and Research
Co	60	Total	5 Ci	Any			Instruction and Research
Co	60	Total	20,000 Ci	Sealed Sources	Custom Design		Pool Irradiator
Co	60	Total	20,000 Ci	J. L. Shepherd & Associates Model 5810 and 7810 or Gamma Industries Model VDHP*	J. L. Shepherd & Associates Model 484R		Gamma Irradiator
I	125	Total	1.5 Ci	Any			Instruction and Research
I	131	Total	1.5 Ci	Any			Instruction and Research

PICO-CURIE; µCi-MICROCURIE; mCi-MILLICURIE; Ci-CURIE

Chuck Carr Brown, Ph.D. Assistant Secretary	DATE 4/27/04	PAGE 1	OF PAGES 7
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LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF ENVIRONMENTAL SERVICES
PERMITS DIVISION
REGISTRATIONS and CERTIFICATIONS SECTION
P.O. BOX 4313
BATON ROUGE, LOUISIANA 70821-4313

LICENSEE		LICENSE NUMBER		AMENDMENT NUMBER		EXPIRATION DATE	
Louisiana State University		LA-0001-L01		30		May 31, 2005	
RADIOISOTOPE		MAXIMUM ACTIVITY		SEALED SOURCE IDENTIFICATION		STORAGE CONTAINER OR EXPOSURE DEVICE	
ELEMENT	WAVE NO.	NUMBER OF SOURCES	OR QUANTITY PER SOURCE	CHEMICAL FORM-PHYSICAL STATE		AUTHORIZED USE	
Cs	137	Any	***	Approved Sealed Sources		Troxler Electronic Labs or Campbell-Pacific Nuclear Devices	
						Surface/Soil Density, Moisture or Asphalt Content Gauging	
Cs	137	8	170 Ci	Eberline Models SCS-1001 through SCS-1008		Eberline Model 1000B	
						Calibration Sources	
Cs	137	Total	15 Ci	Any			
						Instruction and Research	
Cs	137	2	600 Ci	RAMCO-50-ORNL Model A*		AECL Gammacell 1000	
						Instruction and Research	
Cs	137	Total	500 Ci	Sealed Sources*		Custom Design	
						Pool Irradiator	
Cs	137	1	550 Ci	Shepherd 6810 ORNL A-0035*		J. L. Shepherd & Assoc. Model 143-45A	
						Gamma Irradiator	
Cs	137	Total	4,000 Ci	Approved Sealed Sources* Model MDS Nordion C-440		MDS Nordion, Inc. Gammacell 40 Extactor	
						Gamma Irradiator	
Ir	192	Total	1 Ci	Any			
						Instruction and Research	
Ra	226	Total	50 mCi	Any			
						Instruction and Research	
Pu	239	Total	200 gm	Sealed Capsules			
						Instruction and Research	
Am (Am-Be)	241	Any	***	Approved Sealed Sources		Troxler Electronic Labs or Campbell-Pacific Nuclear Devices	
						Soil/Surface Density, Moisture or Asphalt Content Gauging	
Am	241	Total	50 mCi	Any			
						Instruction and Research	

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LICENSEE			LICENSE NUMBER		AMENDMENT NUMBER		EXPIRATION DATE	
Louisiana State University			LA-0001-L01		30		May 31, 2005	
RADIOISOTOPE		MAXIMUM NUMBER OF SOURCES	MAXIMUM ACTIVITY OR QUANTITY PER SOURCE	SEALED SOURCE IDENTIFICATION		STORAGE CONTAINER OR EXPOSURE DEVICE		
ELEMENT	MARK NO			CHEMICAL FORM- PHYSICAL STATE		AUTHORIZED USE		
Cf	252	Total	130 mCi (230 ug)	Sealed Sources*		Custom Design		Instruction and Research
Th	Natural	Total	10 mCi (90 kg)	Any				Instruction and Research
U	235	Total	214 µCi (100 gm)	Any				Instruction and Research
U	Natural	Total	30 mCi (90 kg)	Any				Instruction and Research
U	Natural	Total	760 mCi (2510 kg)	Aluminum-Clad Metal Slugs				Fuel for Sub-Critical Reactor

*Sealed sources which have been evaluated and approved for licensing purposes and authorized for use in accordance with the Sealed Sources and Devices Registry Safety Evaluation of the Device.

**SNM-Special Nuclear Material, as defined in Chapter 1 of LAC 33:XV.

***For possession and use in devices which have been evaluated and approved for licensing purposes and authorized for distribution under a license issued by the Department, an Agreement State or the Nuclear Regulatory Commission.

1. Radioactive material shall be stored and used at locations within the legal properties, auxiliary facilities and rental properties of the Louisiana State University System (See Attached Addendum). Radioactive material may also be used at temporary sites in the State of Louisiana.
2. Radioactive material shall be used only by, or under the supervision of individuals designated by the Louisiana State University System Radiation Safety Committee, Dr. Sandra C. Roerig, Committee Chairman.
3. The Radiation Safety Officer for this license is L. Max Scott, Ph.D.
4. A. Radioactive material shall not be used in or on humans without prior written approval of the Department.
 B. Radioactive material used in field applications where activities are released to the environment shall be in accordance with LAC 33:XV.422. A written report which verifies that the provisions of LAC 33:XV.422 have been met shall be submitted to the Department within 30 days of each such release.

LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY
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 P.O. BOX 4313
 BATON ROUGE, LOUISIANA 70821-4313

LICENSEE Louisiana State University		LICENSE NUMBER LA-0001-L01	AMENDMENT NUMBER 30	EXPIRATION DATE May 31, 2001
RADIOISOTOPE ELEMENT	MAXIMUM NUMBER OF SOURCES	MAXIMUM ACTIVITY OR QUANTITY PER SOURCE	SEALED SOURCE IDENTIFICATION CHEMICAL FORM-PHYSICAL STATE	STORAGE CONTAINER OR EXPOSURE DEVICE AUTHORIZED USE

5. Experimental animals administered radioactive material, or their products, shall not be used for human consumption or as animal feed.
6.
 - A. Sealed sources, other than those fabricated by the licensee, shall not be opened by the licensee without prior authorization from the Department.
 - B. Sealed sources fabricated by the licensee shall be specifically subject to the survey requirements of LAC 33:XV.430, and to the labeling requirements of LAC 33:XV.450 and 451 as though the sources were not sealed.
7.
 - A. Leak tests shall be conducted in accordance with LAC 33:XV.426.
 - B. The periodic leak tests required by LAC 33:XV.426 do not apply to the sealed sources that are stored and not being used. The sources excepted from this test shall be tested for leakage prior to use or transfer to another person, unless they have been leak tested within six (6) months prior to the date of transfer or use.
 - C. Leak test intervals may be extended to three (3) years for those devices which have been authorized by the Department, an Agreement State, a licensing state or the Nuclear Regulatory Commission for three (3) year testing intervals. For those devices, the licensee must maintain documentation from the manufacturer to support the three (3) year authorization.
 - D. Gas chromatograph detector cells radioactive material, except those containing Hydrogen-3, shall be considered as sealed sources and shall be leak tested in accordance with the collective requirements of this condition.
8. Pursuant to LAC 33:XV.422 and 461, the licensee is authorized to dispose of radioactive waste by incineration provided gaseous effluent from incineration does not exceed the limits specified for air in Chapter 4, Appendix B, Table II, LAC 33:XV. Ash residues may be disposed of as ordinary waste provided appropriate surveys pursuant to LAC 33:XV.430 are made to determine that concentrations of radioactive material appearing in the ash residues do not exceed the concentrations (in microcuries per gram) specified for water in Chapter 4, Appendix B, Table II, LAC 33:XV. Individuals operating the incinerator shall have specific training in the incineration of radioactive material, and shall be designated by the System Radiation Safety Officer. Incineration of radioactive material shall be conducted only at L.S.U. Veterinary Medicine School at Baton Rouge, L.S.U. School of Dentistry at New Orleans, the University of New Orleans at New Orleans, the Pennington Biomedical Center at Baton Rouge, and the L.S.U. School of Medicine at Shreveport.

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 BATON ROUGE, LOUISIANA 70821-4313

LICENSEE Louisiana State University		LICENSE NUMBER LA-0001-L01	AMENDMENT NUMBER 30	EXPIRATION DATE May 31, 2005
RADIOISOTOPE ELEMENT	MAXIMUM NUMBER OF SOURCES	MAXIMUM ACTIVITY OR QUANTITY PER SOURCE*	SEALED SOURCE IDENTIFICATION CHEMICAL FORM- PHYSICAL STATE	STORAGE CONTAINER OR EXPOSURE DEVICE AUTHORIZED USE

- Idlewild Research Station, Clinton, Louisiana 70722
- Northeast Research Station, St. Joseph, Louisiana 71366
- Macon Ridge Location, Northeast Research Station, Winnsboro, Louisiana 71295
- Pecan Research Extension Station, Shreveport, Louisiana 71135
- Red River Research Station, Bossier City, Louisiana 71113
- Rice Research Station, Crowley, Louisiana 70527
- St. Gabriel Research Station, St. Gabriel, Louisiana 70776
- Southeast Research Station, Franklinton, Louisiana 70438
- Sweet Potato Research Station, Chase, Louisiana 71324
- Sugar Station, St. Gabriel, Louisiana 70659
- Louisiana State University Memorial Forest, Sheridan, Louisiana 70427

*Louisiana Universities Marine Consortium DeFelice Marine Center, 8124 Highway 56, Chauvin, Louisiana 70344